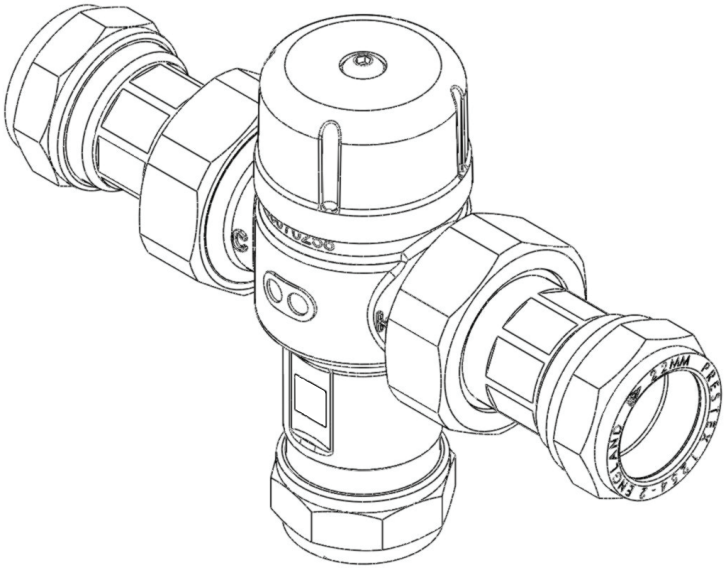
PRESTEX

DOMESTIC VALVE SOLUTIONS

Installation Instructions and User Guide

15mm & 22mm
In-Line Thermostatic Mixing Valve-TMV2

P404, P404UA



It is important that these guidance notes are read and fully understood prior to product installation

TMV 2 SCHEME®

2 Year

BSEN 1111

BSEN 1287

IMPORTANT INTRODUCTION NOTES

The valves covered by these instructions have been tested and certified as being in compliance with BS EN 1111:1999 and BS EN 1287:1999.

Valves operating outside the requirements of these standards are not covered by the TMV2 Scheme and are not guaranteed to operate as Type 2 valves.

The installer should be aware of his duty of care and responsibility in ensuring that compliance with regulations is maintained. The valve is not guaranteed to function correctly to the TMV2 specification unless it is installed and used in accordance with these instructions.
Regular servicing is essential to ensure continued safe operation of this thermostatic mixing valve. The recommended service interval is no greater than 12 months.

This Prestex Model P404 in-line thermostatic mixing valve, available in 15mm and 22mm sizes, is intended to be fitted into applications where the reliable control of hot water temperature is necessary to prevent scalding. In the event of cold water supply failure, the product will shut off the hot water supply.

Water Regulations

The Prestex Model P404 mixing valve must be installed in accordance with the regulations of the local water company and the Water Supply (Water Fittings) Regulations 1999.

Approvals

This product is certified under the BuildCert TMV2 scheme and has been independently tested by an approved testing laboratory WRc-NSF and is a Water Regulations Advisory Scheme (WRAS) approved product and listed in the Water Fittings and Materials Directory.

Installation

Separate isolation valves must be installed on the hot and cold water inlet supplies.
To ensure proper performance of the thermostatic mixing valve, the isolating valves should preferably be full bore and always be fully open during operation.
The mixing valve is supplied with filter elements but it is advisable to additionally install Y-strainers on the hot and cold water supplies. The isolating valves and strainers should be installed as close as practicable to the location of the mixing valve and should always be in an accessible location.

Before installation, the hot and cold water supply systems must be thoroughly flushed to remove any dirt/debris that may have accumulated. Failure to do so may adversely affect the performance of the mixing valve.

CONDITIONS OF NORMAL USE

Table 1

Operating Range	High Pressure	Low Pressure
Maximum static pressure - bar	10	10
Hot & cold flow pressure - bar	1.0 to 5	0.1 to 1
Hot supply temperature - °C	55 to 65	55 to 65
Cold supply temperature - °C	≤ 25	≤ 25

Minimum hot inlet to mixed outlet temperature differential = 10°C

Note: Valves operating outside these conditions can not be guaranteed by the Scheme to operate as Type 2 valves.

The highest flow rates will be achieved under balanced pressure conditions, but the pressure at the valve inlets must be within a ratio of 5:1 under flow conditions and the size and layout of pipework and fittings must take this into account.

FITTING

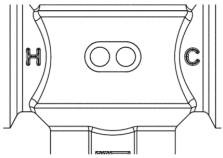
Before installation, the system operating conditions of inlet pressures, hot water temperature and hot and cold water flow rates should be determined and confirmed to be within the expected conditions of normal use shown in the table below.

	BS1287	BSEN1111
Maximum static pressure (bar)	10.0	10.0
Supply pressure hot and cold (bar)	0.1 – 1.0	1.0 – 5.0
Hot supply °C	55 - 65	55 – 65
Cold supply °C	Maximum 25	Maximum 25
Mixed water temperature	Maximum 46	Maximum 46

Valves must operate in either a high pressure setting or a low pressure setting. These valves are not capable of operation with, for instance hot water supply in one pressure range and cold water supply in the other pressure range. In these conditions it is necessary to either boost one pressure or reduce the other so that both supplies are within a common pressure range. If your water supply cannot meet these conditions then the valve cannot be guaranteed to operate as a Type 2 valve.

Operating pressures above 5.0 Bar will require the installation of a pressure reducing valve. Correct location of the mixing valve is important to ensure that it is accessible for commissioning and servicing.

- The valve body is clearly marked with **'C'** for **Cold** and a blue indicator and **'H'** for **Hot** and a red indicator.



The valve must be correctly connected to the respective supplies

- The use of sealing compounds must be avoided since they may intrude into the water supply and impair the valve performance.

- The valve must be so installed that it is readily accessible for commissioning and maintenance when being installed in accordance with TMV2.

- The valve must be installed with isolation valves on both the hot and cold water systems as close as possible to the valve; so as to allow the valve to be commissioned and tested correctly.

- The valve is supplied with integral strainers on the hot and cold water supplies therefore inline strainers should not be required.

- The valve is fitted with integral "listed" non-return valve cartridges which command the water supply, therefore the thermostatic valve is protected against cross-flow due to unbalanced line pressures as required by the Water Supply (Water Fittings) Regulations 1999.

Assembly Procedure

- Unpack the main valve assembly, remove the three plastic protection caps and check that the bores are free of debris and the end sealing faces are clean.

- Unpack the two tailpieces and confirm they are complete with union nuts and compression nuts and olives.

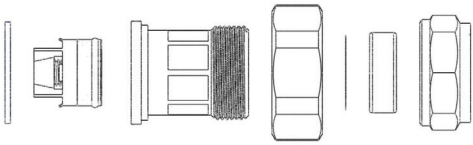
- Locate the sealing gaskets, insert them into the union nuts against the faces of the tailpieces and screw the union nuts onto the valve until a tight seal has been made.

- Remove the compression nuts and olives from the tailpieces. Locate the inlet filter screens and insert them into the bore of the tailpieces up to the shoulder.

- Assemble the valve to the pipework and ensure the hot and cold water pipes have full penetration into the tailpiece.

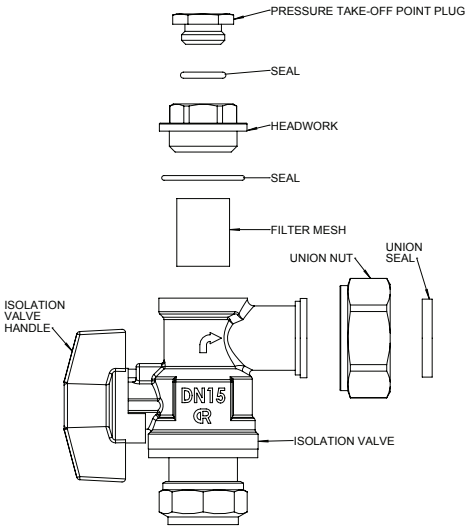
- Tighten the compression nuts ensuring that the end of the pipe remains in contact with the filter element.

Exploded view of tailpiece assembly



The Prestex Model P404UA mixing valve is optionally provided with angled assemblies in lieu of the tailpiece arrangement shown above. This allows the connections of the hot and cold water supplies to be parallel to the mixed water outlet for ease of piping layouts.
The assemblies comprise an integral full bore ball valve and in-line strainer in an angled housing.
When this arrangement is used, the requirements for isolation valves and Y-strainers previously mentioned are regarded as fulfilled.

Exploded view of angled valve assembly



APPLICATION

The Prestex Model P404 thermostatic mixing valve has been independently tested by WRc-NSF against the requirements of BS EN 1287 (Low Pressure-LP) and BS EN 1111 (High Pressure-HP) and certified as complying with the requirements of the TMV2 Scheme and is suitable for use in the designations shown in the table below.

Valves approved for designation for use 'HP' only:- If a water supply is fed by gravity then the supply pressure should be verified to ensure the conditions of use are appropriate for the valve.

Application	Pressure	Maximum set mixed water temperature
Shower	HP and LP	41°C
Wash basin	HP and LP	41°C
Bidet	HP and LP	38°C
Bath (Tub)*	HP	44°C

The above temperatures are recommended by the Thermostatic Mixing Valve (manufacturers) Association as relevant settings for the varying applications shown. This is the maximum commissioning temperature but valves may exceed this by 2°C in use.
The range of available temperature adjustment is 35°C to 48°C but 46°C is the maximum recommended mixed water temperature from a bath tap. The maximum temperature takes account of the allowable temperature tolerances inherent in thermostatic mixing valves and temperature losses in metal baths. **46°C is not a safe bathing temperature for adults or children**.

The British Burns Association recommends 37°C to 37.5°C as a comfortable bathing temperature for children. In premises covered by the Care Standards Act 2000, the maximum mixed water outlet temperature is 43°C.

COMMISSIONING

The valve must be commissioned under normal site system conditions and after establishing supply conditions with the hot and cold water supplies open, leave the system running to allow temperatures and pressures to stabilise and be checked.

Prior to commencing commissioning, the following checks should be carried out.

- The designation of the thermostatic mixing valve matches the application.
- The supply pressures and temperatures are within the operating range of the valve.
- Isolating valves and strainers are provided.

If all these conditions are met, proceed to set the temperature as described below.

The Prestex thermostatic mixing valve is supplied factory set at 43°C but the valve may be simply adjusted after installation.
The mixed water temperature at the terminal fitting must never exceed 46°C

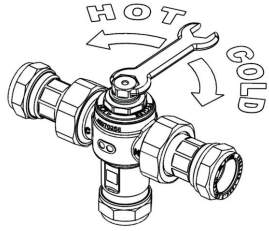
When the valve has been installed with the correct conditions of use it is advised that the valve is subjected to exercise prior to the commissioning at the application temperature. Operate the valve from full cold to full hot at least three times.

With the valve at the full cold position bring the valve to the correct application temperature by turning the spanner clockwise. If the valve overshoots this temperature, return the valve to the full cold condition, and reset it to the correct temperature +0-2°C. Do not set a valve on a lowered temperature as this will not provide consistent operation.

When the valve is set to the required temperature for the application carry out 5 cold water isolation tests to further exercise the valve.

- Set the mixed water temperature to the required value. It is advisable to use a calibrated digital thermometer for checking the inlet and outlet temperatures.

- Remove the plastic protective cap on top of the valve with a suitable tool.



- **using a close fitting spanner, reduce the mixed outlet temperature by turning clockwise.**

- **increase the mixed water outlet temperature by turning counterclockwise.**

- Measure and record the temperature of the hot and cold water supplies at the inlets to the valve.

- Measure and record the temperature of the water discharging from the valve at the greatest draw-off flow rate.

- In the absence of other temperatures being specified those detailed in Table 2 are the desired settings

Once the required mixed outlet temperature has been achieved, isolate the cold water supply and monitor and record the mixed water temperature including the maximum and final temperatures achieved. The mixed water temperature should never exceed 46°C.

Re-fit the cap.

Record all the equipment used during commissioning.

MAINTENANCE

The Prestex Model P404 thermostatic mixing valve will provide satisfactory service and a high level of protection, provided it is maintained and subjected to **In-Service Testing**.

Approximately 6-8 weeks after commissioning, the following tests should be undertaken.

- Temperature of the hot and cold water supplies - **RECORD**
- Temperature of the mixed water temperature at the greatest draw off flow rate – **RECORD**

If the mixed water temperature has significantly changed from that measured at installation (e.g. > 1°C), **RECORD** the change and before making any adjustments to the valve confirm that:-

- Strainer elements in the hot and cold water supplies are clean and undamaged.
- Non-return valves are clean and operating correctly.
- Isolation valves are operating correctly and are set in the fully open position.

If the mixed water temperature is acceptable, the following additional observations should be made:-

Isolate the cold water supply and **RECORD** the maximum temperature achieved. After 5 seconds, if water is still flowing **RECORD** the final temperature.

- If there is no significant change to the set outlet temperature (±2°C or less deviation from the original setting) and the fail safe shut-off is functioning, then the valve is working correctly and no further service work is required.

- If the maximum mixed water temperature exceeds the previous test results by more than 2°C then the need for service work on the valve is indicated.

- The equipment used in these In-Service Tests should be **RECORDED** and should preferably be the same as that used at installation.

Note:

If there is a residual flow during the commissioning or the annual verification (cold water supply isolation test) then this is acceptable providing the temperature of the water seeping from the valve is no more than 2°C above the designated maximum mixed water outlet temperature setting of the valve. Any higher temperatures should occur only briefly. Temperature readings should be taken at the normal flow rate after allowing the system to stabilise. The sensing part of the thermometer probe must be fully submerged in the water that is to be tested. Any TMV that has been adjusted or serviced must be re-commissioned and re-tested in accordance with the manufacturer's instructions.

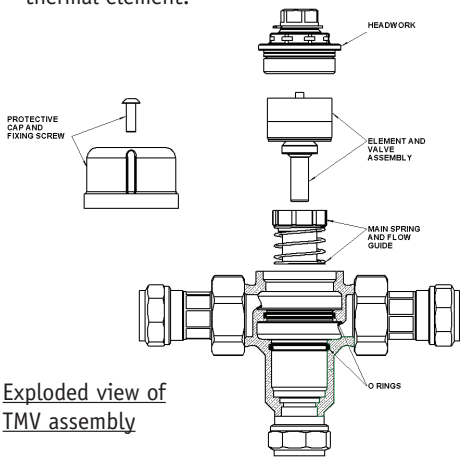
In the absence of any other instruction or guidance, it is recommended that In-Service Tests are carried out once every 12 months as a minimum. If the temperature is outside of the expected range it will be necessary to remove and clean the valve in accordance with the following instructions.

TMV Cleaning and Servicing Instructions

Most domestic water supplies contain calcium which will separate out when the water is heated in a system. The degree and speed of scaling may vary depending on factors such as water flow rates, system design, the hardness of the water and the temperature to which the water is heated.
Deposits of scale may over time form in the valve, particularly at the hot inlet.
The formation of the scale may adversely affect the performance of the valve which will be detected during the in-service testing. If this occurs it will be necessary to remove the valve for de-scaling and servicing.

TO SERVICE THE VALVE:

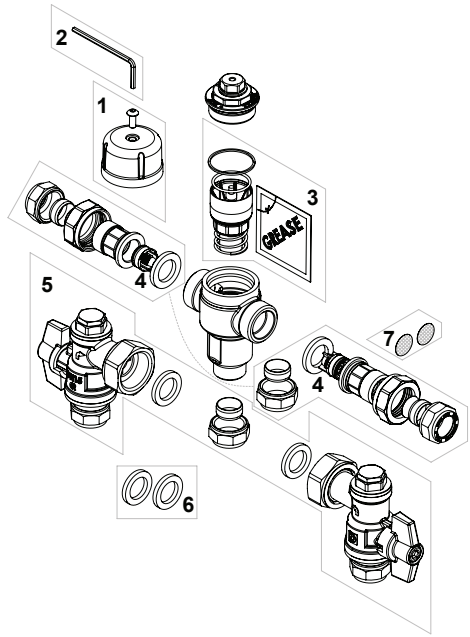
- Isolate the hot and cold supply.
- Remove the valve to a clean working area.
- Remove the protective cap.
- Unscrew the headwork of the valve.
- Carefully remove the element and valve assembly and put to one side.
- Remove the main spring and flow guide and carefully put to one side.
- Inspect the components for contamination or damage.
- Clean or replace as necessary
- Remove the two o rings
- Clean the valve body and headwork using a propriety de-scaler
- Thoroughly rinse the body and headwork in clean water.
- Carefully fit new o rings from the service kit taking care to ensure they are not damaged and are correctly located.
- Lubricate the o rings with the lubricant provided.
- Re-fit the flow guide and spring lubricating the flow guide around the greatest diameter with the lubricant provided
- Lubricate the shuttle valve with the lubricant provided
- Re-fit the shuttle valve and element assembly.
- Re-fit the headwork ensuring correct tightening
- Re-fit the assembled valve and perform the comissioning sequence.
- If after cleaning the valve, and replacing the o ring seals, the valve does not function correctly, it may be necessary to replace the thermal element.



Exploded view of TMV assembly

SPARES

In order to ensure that the Prestex Model P404 thermostatic mixing valve continues to provide satisfactory service, only GENUINE Pegler spare parts must be used.



	Spare part order code	Description
1	854453	Protective cap complete with screw
2	854447	Hexagon key
3	854454	Service kit
4	854449 (15mm) 854450 (22mm)	Tailpiece Strainer kit
5	854451 (15mm) 854452 (22mm)	Angle valve strainer kit
6	854456 (15mm), 854457 (22mm)	Sealing washer
7	854455 (15mm), 817012 (22mm)	Wafer Strainer

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